## REMARKS

### I. Status of the Claims

Claims 1-19 are pending in the application. Claims 15 and 16 are withdrawn from consideration. Claims 1-14 and 17-18 stand rejected. No claims are currently being amended or cancelled. Applicant respectfully requests reconsideration and allowance of claims 1-14 and 17-19 in view of the remarks presented here.

### II. Claim 19 is Allowable

Claim 19 is neither rejected nor allowed in the final Office Action, and, therefore, Applicant presumes that claim 19 is allowable. While claim 19 was rejected in a prior Office Action (mailed on May 21, 2003) over Demiryont (US 6,416,194), the Examiner indicates on page 3 of the final Office Action that all arguments have overcome the Demiryont citation. Accordingly, claim 19 is allowable.

Applicant respectfully requests acknowledgment by the Examiner that claim 19 is allowable.

### III. Claims 1, 2-14, 17 and 18 are Patentable over Gillery

Claims 1, 3-7, 10-14, and 18 stand rejected under § 102(b) over Gillery (US 4,948,677). Claims 2, 8, 9 and 17 stand rejected under § 103(a) over Gillery. Applicant respectfully traverses these rejections in view of the following remarks and the declaration submitted herewith.

Gillery differs from the subject matter of claims 1, 2-14, 17 and 18, which are directed to a thermostable glazing comprising, in part, a solar coating layer consisting essentially of sputter deposited copper oxide. Gillery does disclose copper oxide primer layers at Col. 6, lines 13-14, but there is no disclosure in Gillery of a copper oxide solar control layer. Instead, Gillery discloses using primer layers, such as copper oxide, to promote adhesion between metal and metal oxide layers. Col. 3, lines 15-17. That is, the copper oxide primer layer of Gillery is used to improve adhesion between the infrared reflecting metallic film layer and the antireflective oxide layer. Also, the solar control layer of Gillery is metallic silver film. See Col. 4, lines 37-

38. Thus, Gillery fails to disclose any solar coating layer consisting essentially of sputter deposited copper oxide.

In addition, to prevent the silver film of Gillery from oxidizing, a reactive process must be avoided. Thus, using the process of Gillery, it is not possible to obtain a fully oxidized thermostable solar control layer consisting essentially of copper oxide next to the silver film layer of Gillery. Accordingly, Gillery fails to disclose a transparent, thermostable solar coating consisting essentially of sputter deposited copper oxide.

In addition to the fatal deficiency that Gillery fails to disclose the copper oxide solar coating layer of the subject claims, the layered structure of Gillery is not thermostable. To be thermostable as that term is used in the subject claims, the coatings of Gillery would have to be able to withstand heat treatment of the substrate, such as tempering or bending, and contribute the desired optical properties after such heat treatment. See page 11, lines 9-12, of the instant application discussing thermostability. Gillery's layered structure has no such thermostability, but instead, Gillery is typical of the low emissivity coatings discussed in the background on page 2 of the instant application. When Gillery's copper primer layers are heated, the copper films will be oxidized to form a diffusion oxide interlayer with an adjacent transparent oxide layer. Thus, the primer layer of Gillery cannot be considered thermostable.

Also, the metallic silver film of Gillery is not thermostable. To prevent silver materials from oxidizing, materials such as chromium, niobium, nickel or titanium are deposited on the silver film as protective films. See Col. 4, lines 50-55 of Gillery discussing the protective overcoat and also see page 2, lines 7-9, of the instant application discussing the requirement of protective overcoat layers in prior art coatings. Due to these limitations, the layered structure of Gillery is not thermostable and would not retain its optical values, such as transmittance and reflectance, when heated to temperatures as high as 590 °C to 650 °C. Thus, Gillery fails to disclose any thermostable glazing comprising a thermostable coating consisting essentially of sputter deposited copper oxide.

Each of claims 1, 3-7, 10-14, and 18 defines a thermostable glazing comprising, in part, a thermostable solar coating consisting essentially of sputter deposited copper oxide. Because Gillery fails to disclose, teach or suggest such a solar coating, the claims are patentable over Gillery.

With particular reference to claim 17, sputter deposition of copper oxide using the methods of Gillery will not result in a functional thermostable solar coating being deposited on the surface of a substantially transparent, bent substrate. Instead, using the methods of Gillery, the copper oxide will be deposited on a bent substrate in a non-uniform manner resulting in poor optical properties. In addition, such non-uniform coatings will not withstand heat treatment at the substrate's bending and tempering temperatures. In contrast, by using the methods described in the present application, solar coatings can be deposited on bent substrates to provide coatings with high film durability and long-shelf life. Also, depositing copper oxide on a bent substrate using the methods described in the present application provides advantages including not having to perform a post-deposition bending or tempering process to achieve a desired shape.

Claims 1, 2-14, 17 and 18 are also patentable over Gillery because Gillery fails to disclose, teach or suggest the unexpected result of a thermostable solar coating consisting essentially of copper oxide having excellent mechanical film properties, low moisture absorption, excellent thermal and spectral properties and capable of being produced at faster production speeds and with reduced production costs. See page 15, first full paragraph of the instant application and page 18, lines 19-22. Also, Gillery fails to disclose, teach or suggest the unexpected result that a substrate comprising a solar coating consisting essentially of sputter deposited copper oxide can be tempered or bent subsequent to deposition without any additional protective layer of metal or other material to shield it during exposure to the high temperatures required for bending or tempering. Accordingly, Gillery fails to disclose, teach or suggest some of the advantages provided by the present invention, and, accordingly, Gillery does not anticipate, or render obvious, any of the claims.

Further supporting patentability of the subject matter of the pending claims over Gillery, to advance the prosecution of the present application, Applicant submits with this response another declaration pursuant to 37 C.F.R. § 1.132 stating that the Gillery coating is not thermostable at temperatures in the range of 590-650 °C. Accordingly, the coating of Gillery and the coating of the subject claims differ, and the subject claims are patentable over Gillery.

Applicant requests withdrawal of the rejection.

## IV. Claims 1-3, 5-14, 17 and 18 are Patentable over King

Claims 1-3, 5, 10-14, and 18 stand rejected under § 102(b) over King (US 3,720,541). Claims 6-9 and 17 stand rejected under § 103(a) over King (US 3,720,541). Applicant traverses these rejections in view of the following discussion.

Similar to Gillery, the layers of King are not thermostable. Rather, King is typical of the coatings discussed in the background on page 2, lines 7-9, of the instant application, such coatings requiring a protective overcoat of a silicon compound and an undercoat with a stabilizing metal-containing layer. See Col. 1, lines 47-48 of King discussing surface silica protective coating. Without the protective coating layer, the coated article of King cannot withstand temperatures above 240 °C. See Col. 3, lines 27-31, expressly stating that the maximum heating temperature, prior to deposition of the protective overcoat, is 240 °C. In contrast, the present invention requires no such protective overcoat to be thermostable at temperatures encountered during the tempering or bending processes. Thus, the deposited copper oxide layer of King cannot be "thermostable" as that term is used in the present claims. For these reasons, King does not anticipate, or render obvious, any of claims 1-3, 5-14, 17 and 18.

Claims 1-3, 5-14, 17 and 18 are also patentable over King because King fails to disclose, teach or suggest the unexpected result of a thermostable solar coating consisting essentially of copper oxide having excellent mechanical film properties, low moisture absorption, excellent thermal and spectral properties and capable of being produced at faster production speeds and with reduced production costs. See page 15, first full paragraph of the instant application and page 18, lines 19-22. Also, King fails to disclose, teach or suggest the unexpected result that a substrate comprising a solar coating consisting essentially of sputter deposited copper oxide can be tempered or bent subsequent to deposition without any additional protective layer of metal or other material to shield it during exposure to the high temperatures required for bending or tempering. As discussed above, King requires a protective overcoat to prevent optical and mechanical degradation of the film. Accordingly, King fails to disclose, teach or suggest some of the advantages provided by the present invention, and, accordingly, King does not anticipate, or render obvious, any of the claims.

Applicant requests withdrawal of the rejection.

## V. Conclusion

Having addressed all outstanding issues, Applicant respectfully requests withdrawal of all rejections and issuance of a Notice of Allowance.

Respectfully submitted,

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Date

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